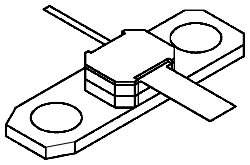
SGS-THOMSON MICROELECTRONICS

SD1528-08

RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

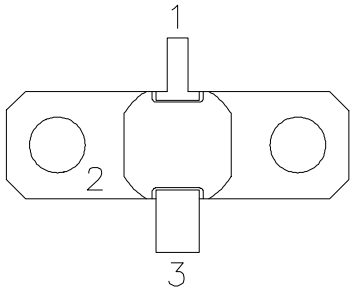
- DESIGNED FOR HIGH POWER PULSED IFF, DME, TACAN APPLICATIONS
- 20 WATTS (typ.) IFF 1030 - 1090 MHz
- 15 WATTS (min.) DME 1025 - 1150 MHz
- 15 WATTS (typ.) TACAN 960 - 1215 MHz
- 10 dB MIN. GAIN
- REFRACTORY GOLD METALLIZATION
- EMITTER BALLASTING AND LOW THERMAL RESISTANCE
- 20:1 LOAD VSWR CAPABILITY AT SPECIFIED OPERATING CONDITIONS
- INPUT MATCHED, COMMON BASE CONFIGURATION



.250 SQ. 2LFL (M105)
hermetically sealed

ORDER CODE	BRANDING
SD1528-08	1528-8

PIN CONNECTION



1. Collector
2. Base
3. Emitter

DESCRIPTION

The SD1528-08 is a gold metallized, silicon NPN power transistor. The SD1528-08 is designed for applications requiring high peak power and low duty cycles such as IFF, DME and TACAN. The SD1528-08 is packaged in the .250" input matched hermetic stripline flange package resulting in improved broadband performance and a low thermal resistance.

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	65	V
V_{CEO}	Collector-Emitter Voltage	65	V
V_{EBO}	Emitter-Base Voltage	3.5	V
I_C	Device Current	1.5	A
P_{DISS}	Power Dissipation	87.5	W
T_J	Junction Temperature	+200	°C
T_{STG}	Storage Temperature	– 65 to +150	°C

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	2.0	°C/W

ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 10mA	I_E = 0mA	65	—	—	V
BV_{CES}	I_C = 25mA	V_{BE} = 0V	65	—	—	V
BV_{EBO}	I_E = 1mA	I_C = 0mA	3.5	—	—	V
I_{CES}	V_{CE} = 50V	I_E = 0mA	—	—	2	mA

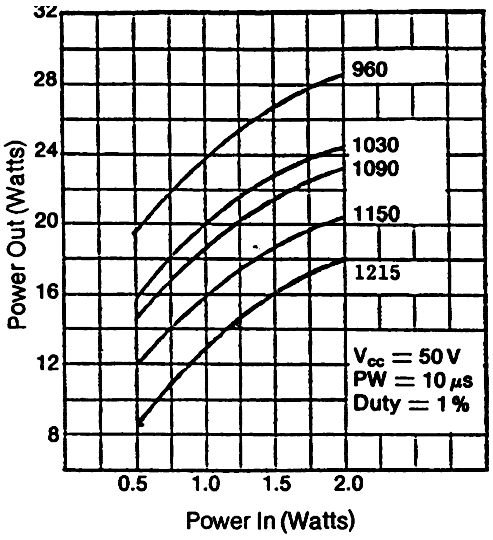
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 1025 — 1150MHz	P_{IN} = 1.5 W	V_{CE} = 50 V	15	—	—	W
G_P	f = 1025 — 1150MHz	P_{IN} = 1.5 W	V_{CE} = 50 V	10	—	—	dB
η_C	f = 1025 — 1150MHz	P_{IN} = 1.5 W	V_{CE} = 50 V	30	—	—	%

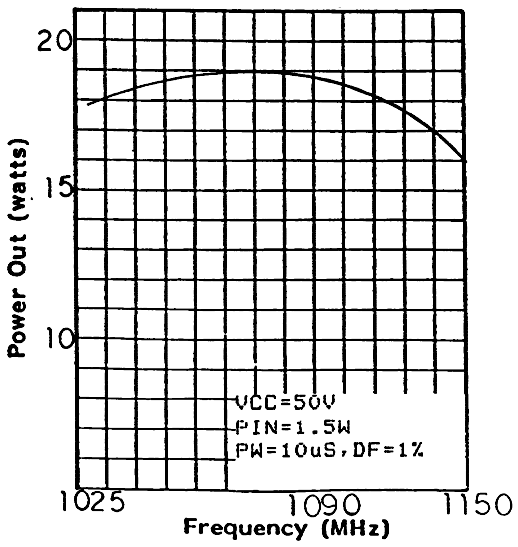
Note: Pulse Width = 10μSec, Duty Cycle = 1%

TYPICAL PERFORMANCE

POWER OUTPUT vs POWER INPUT

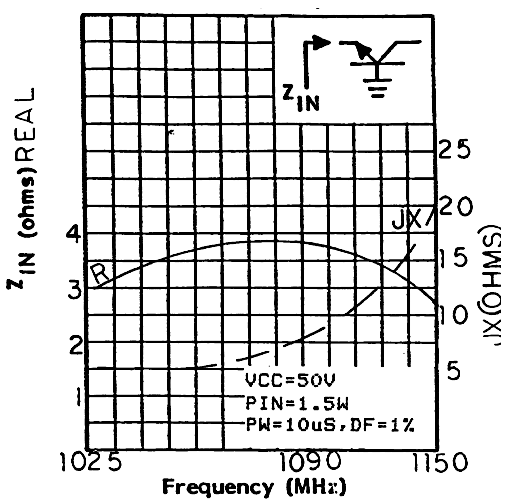


POWER OUTPUT vs FREQUENCY

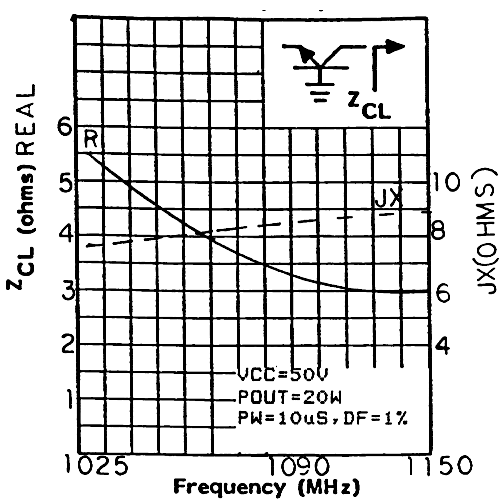


IMPEDANCE DATA

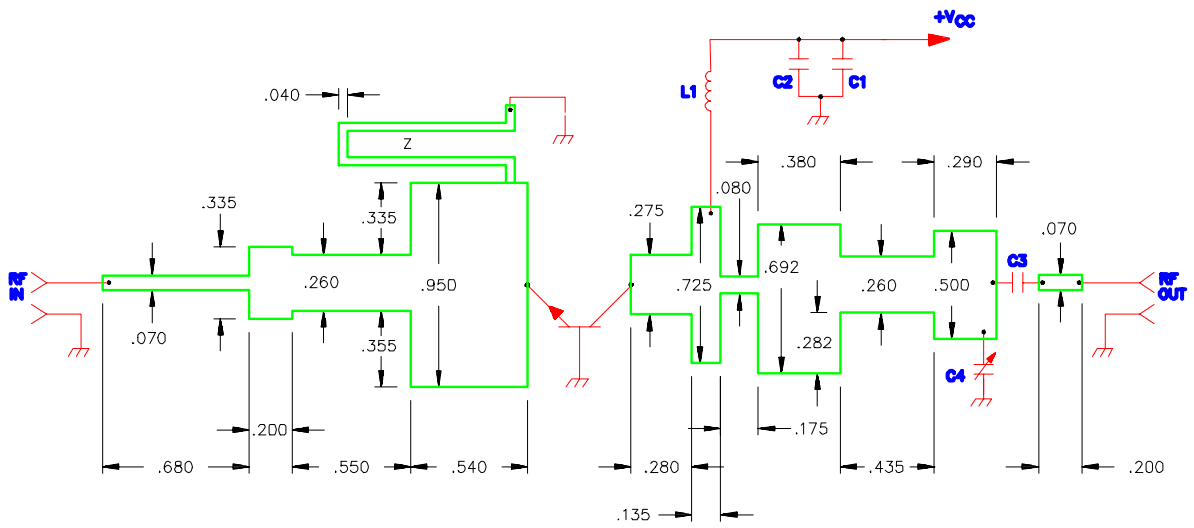
TYPICAL INPUT IMPEDANCE



TYPICAL COLLECTOR LOAD IMPEDANCE



TEST CIRCUIT



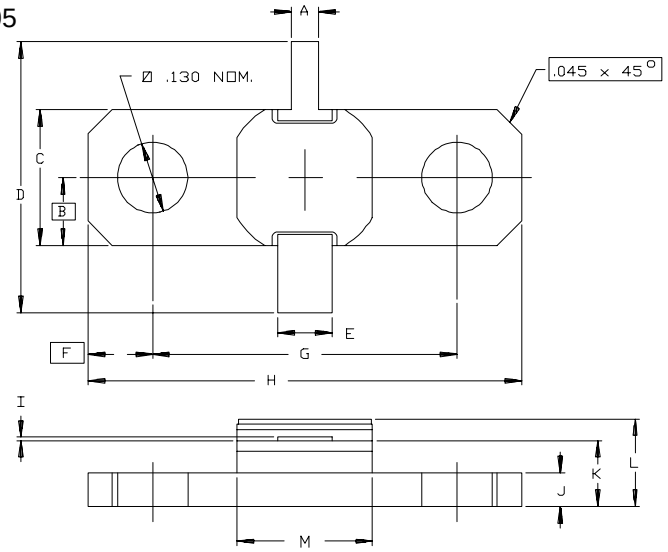
C1 : 1000µF Electrolytic
C2 : 680pF Chip Capacitor
C3 : 120pF Chip Capacitor
C4 : 0.6 - 4.5pF Johanson Gigatrim

L1 : 6 1/2 Turns, #22 AWG on a #30 Drill Bit
Z : Printed Transmission Line, Length = 1.91"

Board : Er = 2.5, .034" Thick
All Dimensions are in Inches.

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0105



SGS-THOMSON MICROELECTRONIC		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.045/1,14	.055/1,40
B	.125/3,18	
C	.245/6,22	.255/6,48
D	1.235/31,37	
E	.095/2,41	.105/2,67
F	.120/3,05	
G	.557/14,15	.567/14,40
H	.795/20,19	.805/20,45
I	.002/0,05	.006/0,15
J	.057/1,45	.067/1,70

CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
K	.112/2,84	.132/3,35
L		.175/4,45
M	.245/6,22	.257/6,53